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## Editorial

by Christophe Courbage\*

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Once again, it is my privilege to present this new issue of the *Insurance Economics newsletter* of The Geneva Association. It begins with three contributions, each addressing important topics in the field of insurance economics. The first one, by Christian Hott and Benno Keller, offers a reflection on the effect of big data on insurance underwriting. In particular, the authors use standard economic welfare analysis to consider the implications of enhanced risk understanding, versus banning the use of risk information in the underwriting process of various insurance markets, including motor insurance, life insurance and property insurance. The second article, by Peter Carayannopoulos and M. Fabricio Perez, analyses whether catastrophe bonds are a valuable new source of diversification for investors. Indeed, the structure of these bonds attempts to isolate investors from market-related risks and expose them only to event risk. The authors examine this argument in the context of the 2008–2009 subprime financial crisis, with somewhat surprising results. Finally, in the third article, Jean-François Outreville comments on a recent paper published in *The Geneva Papers* on university students' preferences regarding the insurance profession. He suggests some new directions of research to better understand these preferences and to explain the reasons for the existing gap between aspirations and expectations of university students regarding the insurance profession.

The insurance economics programme of The Association supports researchers, both professional and academic, in particular, by organising the Annual Circle of Chief Economists (ACCE)'s yearly meeting, where chief insurance economists and strategists from The Geneva Association Members' companies gather to interchange ideas and views on current, relevant affairs in insurance. This year, the 17<sup>th</sup> edition of these meetings took place under the auspices of SCOR on the theme 'insurance prospects in a changing risk environment'. A summary is presented on page 10 of this newsletter.

This newsletter also offers insights about the winners of the various prizes and research grants The Geneva Association confers in support of research in the insurance field. The first one is the Ernst Meyer Prize, which rewards a doctoral thesis that makes a significant and original contribution to the study of risk and insurance economics. I am very happy to announce that this year's Ernst Meyer Prize has been awarded to Maria Polyakova for her Massachusetts Institute of Technology (MIT) PhD dissertation entitled 'Regulation of Public Health Insurance'. The second prize is the Shin Research Excellence Award, offered jointly with the International Insurance Society to promote original, applied research

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in insurance addressing subjects which directly influence business operations on a practical level. The topics of the winning papers aptly illustrate the scope of the prize, since one deals with overcoming barriers to microinsurance adoption and the other with the role of insurance in reducing losses from extreme events, two activities that offer challenges and opportunities for insurers.

This year is a special year for The Geneva Association as *The Geneva Papers* celebrates its 40<sup>th</sup> birthday. In January 1976, Raymond Barre, the first president of The Geneva Association, and Orio Giarini, its first Secretary General, founded *The Geneva Papers* with the main goal of supporting and encouraging research in the economics of risk and insurance. One activity to celebrate this 40<sup>th</sup> anniversary is to issue a special anniversary collection of the journal gathering together articles published in the last several years that echo the diversity of themes addressed in the journal (the table of contents is presented on page 23). I take this opportunity to announce that *The Geneva Papers* is also planning two special issues, one on disaster risk reduction and the other on health. I encourage any parties interested to submit a paper for these two special issues (see the calls for papers pages 19–20).

Finally, I should like to close this editorial by reminding you that a unique gathering of researchers in insurance economics is taking place this summer in Munich, with the holding of the third World Risk and Insurance Economics Congress (WRIEC). No other platform will bring together as many leading scholars in the coming years. It will be also a prime opportunity for researchers to inform themselves about key issues that are of importance to the insurance industry and engage them in future projects. I genuinely look forward to seeing you there in Munich.

## Big Data, Insurance and the Expulsion from the Garden of Eden

by Christian Hott and Benno Keller\*

The advent of big data, fuelled by declining data-storage and processing costs as well as increasing connectivity, fundamentally changes the environment in which insurance operates. Every year, more data is produced than in the entire previous history of humankind. The rapidly growing availability of data is likely to enhance the economic and societal contribution of insurance by improving insurers' understanding of risks, enhancing the efficiency of the insurance mechanism and by increasing the effectiveness of risk prevention and mitigation. In fact, data analysis has always been at the root of the insurance business model.

Big data, however, also raises a number of concerns. These do not only involve ethical and societal concerns about privacy, data protection and 'unfair' discrimination, but also questions about the welfare consequences. In insurance, for example, the deployment of big data technologies is likely to result in a greater differentiation of insurance premiums based on individual risk characteristics. The welfare implications of such risk classifications are far from obvious and require detailed economic analysis. In recent years, such concerns have led regulators in different jurisdictions to impose bans on the use of certain information for underwriting purposes (see, for example, the EU Gender Directive or the debate on the use of credit scores in the U.S.).

This article uses standard economic welfare analysis to consider the implications of enhanced risk understanding versus banning the use of risk information in the underwriting process.<sup>1</sup> For the purpose of this analysis, we uniquely

\* Dr. Benno Keller, Head, Research and Policy Development, Zurich Insurance Company Ltd., and Dr. Christian Hott, Senior Economic Advisor, Zurich Insurance Company Ltd. The paper reflects the personal view of the authors and not necessarily that of Zurich Insurance Group. The authors would like to thank the participants at the 2015 meeting of the Geneva Association's Annual Circle of Chief Economists and David Swaden for helpful comments and suggestions.

1 Big data analytics may be applied in different stages of the insurance value chain, including customer insights, claims management and servicing, and risk selection and pricing. This paper uniquely focuses on the latter.



focus on the welfare implications of risk classification and do not consider broader concerns about privacy and data protection. The motivation of this analysis is to develop an analytical framework to evaluate the efficiency implications of different policy choices.

### Life in Eden: the value of premium risk insurance

We refer to 'Eden' as a situation in which no one (neither insureds nor insurers) knows about individual risk characteristics. Take life insurance before the invention of genetic testing as an example. A holder of a specific gene may have a high risk for developing a certain illness, but neither he nor the insurer knows about this. Hence, all individuals pay the same premium rate, irrespective of whether they are holders of a specific genetic predisposition or not.

Now suppose that we bite into the apple of knowledge, and both insurers as well as the insured learn about individual risk characteristics. Insurers will use this knowledge to differentiate premiums between high- and low-risk individuals. Low-risk individuals clearly benefit from this scenario, as they now pay a lower premium, while individuals with a specific genetic predisposition will have to pay a higher rate. However, *ex ante* (i.e. before information about risk types is available), individuals may prefer to stay in Eden for fear of being revealed as a high risk. The absence of individual risk information thus acts as a protection against the risk of being revealed as high risk and having to pay a high insurance premium. We will refer to this in the following as 'premium risk insurance'.<sup>2</sup> Risk-averse individuals will typically value this insurance. As a result, for risk-averse individuals, the expulsion from Eden would lead to an overall loss of welfare.<sup>3</sup> But also insurers may benefit in Eden: they not only sell an additional insurance (the insurance against premium risk) and earn additional premiums, they also save costs for risk assessment. The value of premium risk insurance to individuals will increase with the degree of risk aversion and the uneven distribution of risk types.

In reality, however, we hardly ever observe any 'Eden' insurance markets. In many cases, individuals have at least a sense of their risk type. Moreover, both insureds and insurers may have an incentive to bite into the apple of knowledge to get an information advantage. This information advantage would enable them to engage in adverse selection behaviour.<sup>4</sup>

### Escaping Eden: the impact of adverse selection

As has been shown by Dionne and Rothschild (2014) and others, as long as the insurer cannot use risk-sensitive information and or is not allowed to differentiate insurance premiums, asymmetry of information can cause adverse selection, with high social costs.<sup>5</sup> Suppose individuals now know their risk types, and insurers are banned from using risk information. As high- and low-risk individuals would pay the same premiums, this may give rise to the classical adverse selection scenario: the premium rate set by insurers is unattractive to low-risk types and they will stop buying insurance coverage. As a result, the average losses of the remaining risk pool will increase, and so will the premium, which will trigger additional low-risk individuals to drop out.<sup>6</sup> In equilibrium, only high risks will buy insurance, and for low risks, there will be no insurance coverage. From a welfare perspective, this situation is clearly inferior to risk-adjusted premiums. Adverse selection represents a social cost that must be taken into account in the design of regulatory policies.

The cost of adverse selection will depend on whether low risk-individuals will choose not to buy the uniform insurance protection. This is the case when risk aversion, and therefore the individual benefit from being insured,

<sup>2</sup> The premium risk insurance is sometimes referred to as the 'solidarity principle'. We prefer the term 'premium risk insurance', as 'solidarity principle' usually implies some form of voluntary or involuntary redistribution, which is not the case here.

<sup>3</sup> See, for example, Hoy (2006).

<sup>4</sup> In principle, insurers also have an incentive to get an information advantage and to provide insurance protection only to low-risk individuals. However, this equilibrium is unlikely to be sustainable, as their customers will learn that they are low risk and will therefore ask for lower premiums. As a result we would end in an equilibrium without premium risk insurance.

<sup>5</sup> See Dionne, G. and Rothschild, C. (2014).

<sup>6</sup> Villeneuve (2003) demonstrates for the case of annuities and life insurance that adverse selection can also occur in the form of a higher demand by the worst risks.

is low or the expected loss of the entire pool is significantly higher than the expected loss of low-risk individuals.

### Knowledge as the architect of fortune

While biting into the apple of knowledge may reduce the value of premium risk insurance, there may also be important benefits. In particular, knowledge about different risk levels and premium rates that reflect those risk levels may provide an incentive to invest in mitigation. In order to reduce their risk, individuals can build their property in a different location, install sprinklers, change their lifestyle or have preventive medical treatments.

In a world without insurance, they would be rewarded by the reduced level of risk and expected losses. Hence, they would want to invest in risk mitigation as long as the utility gain from the reduced risk outweighed the costs. However, if individuals were insured, they would only invest in risk mitigation if the measure led to a premium risk reduction that outweighed the costs. This can only be the case if premiums are risk sensitive. Then risk mitigation leads to an increase in individual and aggregated utility. If the net gain from risk mitigation is large enough, the aggregated utility can even exceed aggregated utility in Eden.

### Conclusions

The welfare effect from banning the use of risk information by insurers depends on the net effect between the gain from premium risk insurance, the cost of adverse selection, and the loss of risk mitigation incentives. These elements can differ significantly between different kinds of insurance products. Hence, from an economic welfare perspective, there is no general answer to the question whether the use of risk information should be banned or not.

In the following, we apply our framework to a number of different cases for illustrative purposes. These case studies represent only a first cursory assessment. More in-depth quantitative research would be necessary to come to a definitive conclusion of these cases:

- **Banning the use of gender information as a risk indicator in motor insurance:** The value of premium risk insurance is medium high, as risks do not differ very strongly between women and men. On the other hand, adverse selection costs do not seem to be a major issue. In most countries, motor insurance is mandatory and, therefore, adverse selection is eliminated. Even in the absence of mandatory insurance, adverse selection costs seem to be moderate: as the maximum loss can be substantial, especially with respect to third party liability, the value of insurance cover is arguably relatively high. In addition, it is unlikely that many men will change their gender in order to pay less on their motor insurance and that premium-rate differentiation between genders leads to any kind of risk mitigation. Hence, since costs from adverse selection should be moderate and since we cannot expect positive risk mitigation effects, it is unlikely that banning the use of gender as a risk indicator for motor insurance leads to a significant welfare loss.
- **Banning the use of genetic information for life protection products (mortality/disability):** Under the current circumstances, banning the use of genetic information by insurers provides a high benefit from premium risk insurance. At the same time, as most individuals do not possess genetic information, costs from adverse selection are currently low. This situation may soon change, however. It is expected that genetic tests will become affordable for a significant part of society and thus create the basis for adverse selection. Under these circumstances, banning the use of genetic information could lead to a reduction in welfare. Whether the use of genetic information incentivises risk mitigation has to be analysed case by case. Genetic information could allow for preventive actions to reduce the likelihood of the outbreak of a specific illness. In these cases insurers should offer a uniform insurance product which also covers the costs for risk mitigation.
- **Banning the use of geolocation as risk indicator in property insurance:** The location of a property has a significant effect on its exposure to natural disasters. Even though it may be difficult for individuals to correctly assess the risk exposure of their location, they usually know whether the risk is relatively high or low. Therefore, banning the use of geolocation as a risk indicator offers the possibility for adverse selection. Risk mitigation is important in managing the risks of natural disasters, either through informed decisions on new constructions or

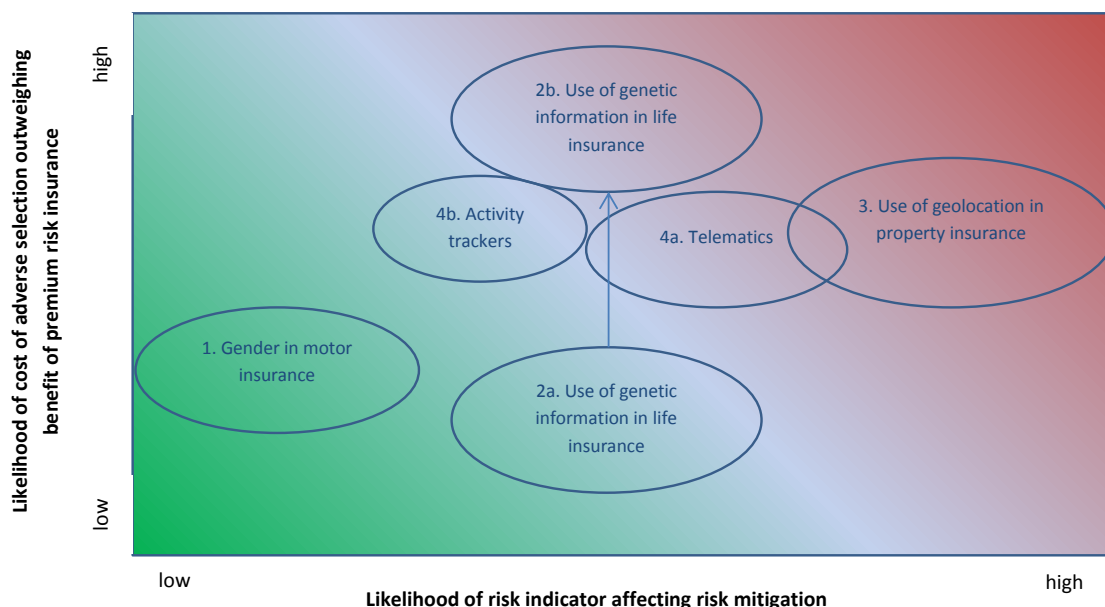


through investments into mitigation measures. Hence, banning the use of geolocation information in property insurance is very likely to reduce welfare. Risk-based prices may lead to affordability issues in highly exposed areas. Rather than ban the use of risk information, however, affordability issues should be dealt with using other measures if maintaining population in high-risk areas is socially desired. For example, one option would be to subsidise the insurance premiums of high-risk individuals.

- **Banning the use of telematics and health trackers to incentivise prudent behaviour:** New technologies have to potential to support and incentivise prudent behaviour by policyholders, thus reducing the overall level of risk. Telematics, for example, has the potential to positively affect prudent driving behaviour. A ban on the use of telematics in motor insurance would therefore likely reduce welfare. Compared to telematics, premium incentives based on data from health trackers would arguably play a somewhat less important role in affecting behaviour by policyholders. It is, however, likely that particularly low-risk individuals will chose insurance solutions that use telematics and activity trackers, which increases the risk in the pool of traditional insurance products. Eventually, traditional insurance products may not be offered at all. At the same time, telematics and, in particular activity trackers, raise substantial privacy concerns.

As we have seen, whether a ban on the use of risk information in underwriting enhances or reduces welfare needs to be assessed on a case-by-case basis. Figure 2 summarises these results. In the bottom left corner, both the likelihood that a ban on using risk information creates adverse selection costs that outweigh the loss of premium insurance and the likelihood that a ban reduces risk mitigation incentives are low. Hence, a ban on using risk information is likely to be welfare enhancing. As we move towards the upper right corner, the likelihood that a ban enhances welfare decreases.

**Figure 2: Likelihood of a ban on using risk information enhancing welfare**  
(green = likely, red = unlikely)



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## Subprime Financial Crises and the Effects in the Catastrophe Bonds Market\*

by Peter Carayannopoulos and M. Fabricio Perez<sup>+</sup>

Catastrophe bonds (CAT bonds) are often said to be 'zero-beta' investments (Litzenberger *et al.*, 1996). Their structure attempts to isolate investors from market-related risks and expose them only to event risk. As a result, these securities are considered to be a valuable new source of diversification for investors. This short article summarises the recent work by Carayannopoulos and Perez (2015) that examines this argument in the context of the 2008–2009 subprime financial crisis. Research on CAT bonds has focused mainly on their pricing (see, for example, Lane and Mahul (2008) and Braun (2011)). In contrast, relatively little research has focused on the relation of CAT bonds with the rest of the market and the claim that they are zero-beta instruments. The recent research of Carayannopoulos and Perez investigates the correlation of CAT bond returns with other asset classes and analyses their dynamic hedge ratios. They use a multivariate generalised autoregressive conditional heteroscedasticity (MGARCH) approach to study the behaviour of the relationship between CAT bonds and each of the stock, corporate and government bond markets for the period from January 2002 to October 2013.

### The structure of catastrophe bonds

Global catastrophe insured losses have grown significantly over time. Although global losses of less than USD 10 billion per year were experienced during the 1970s and early 1980s, losses of more than USD 30 billion per year have often been experienced since the early 1990s. This increasing trend has continued since the year 2000, even after adjusting for inflation. Global economic catastrophe losses over USD 200 billion were observed in 2005, 2008, 2010, 2011 and 2012, and global catastrophe insured losses have experienced a similar pattern (see Guy Carpenter, 2012).

Given the dramatic increase in global economic and insured catastrophe losses, insurance markets have looked for innovative solutions to the problem of risk financing. In this context, CAT bonds have emerged as the predominant alternative risk-financing tool. Since its development in the early 1990s, the market for CAT bonds has grown steadily over the years and has provided a significant source of risk capital to insurers and reinsurers. It constitutes a mechanism that allows insurance and reinsurance companies to transfer natural disaster risk and meet the funding demands of mega-catastrophes.

The typical structure of a CAT bond is as follows. The insurance or reinsurance company, usually referred to as the sponsor, that wants to transfer the risk of a natural catastrophe does not issue the bond directly to the capital markets. Instead, it forms a reinsurance agreement with a special purpose vehicle (SPV) that is usually located offshore. Subsequently, the SPV issues the bond to the capital markets. Proceeds of the bond are placed in a collateral trust account and used to purchase high-quality assets such as short-term treasuries or AAA-rated corporate securities, in accordance with conditions stipulated in the offering documents. The vast majority of CAT bonds use a total return swap (TRS) to convert the fixed returns on the collateral securities into floating returns based on a widely accepted index, most commonly the London interbank offered rate (LIBOR). The bond's interest and principal payments are contingent upon the insured catastrophic event occurring. On the occurrence of the event, proceeds are released from the SPV to help the insurer pay claims arising from the event. In the majority of cases, investors' principal is fully at risk. Depending on the insurer's losses due to the occurrence of the insured

\* This article is extracted from an original paper published as Carayannopoulos, P., Perez, M.F. (2015), 'Diversification through catastrophe bonds: lessons from the subprime financial crisis', *The Geneva Papers on Risk and Insurance – Issues and Practice* 40(1): 1–28, <http://www.palgrave-journals.com/gpp/journal/v40/n1/full/gpp201414a.html>

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event, investors could potentially lose the entire principal in the SPV. In return, investors receive a floating rate on their investment, most commonly LIBOR plus a risk premium. If the event does not occur during the life of the bond, they also receive the invested principal at maturity.

The role of the TRS is to immunise investors from collateral asset value fluctuations (mark-to-market) and eliminate the likelihood of default risk. Thus, this structure allows investors to gain exposure solely to the risk of the underlying peril. Since the TRS counterparty assumes the risk of movements in interest rates and the mark-to-market risk to the value of the collateral assets, the SPV, and ultimately the investors, are insulated from any investment-related risk. As a result, the CAT bond asset class should provide great diversification benefits to investors. On each interest payment date, the TRS counterparty guarantees investors a stream of LIBOR-based investment returns irrespective of the actual investment return earned on the collateral assets.

### **CAT bonds asset class as a source of diversification**

Given the significant influence of the subprime financial crisis on the CAT bond market and the spike in correlations with other asset classes, the question still remains whether CAT bonds still constitute a good source of diversification. The recent work by Carayannopoulos and Perez analyses this question.

Their analysis is based on the construction of hedge ratios between their market proxy and three different investment opportunities: CAT bonds, corporate bonds and government bonds. Since the hedge ratios are estimated by the ratio of the covariance with the market and the variance of the market, they can be interpreted as time-varying betas. Their proxy for the market is the Standard & Poor's 500 (S&P 500) index return. Carayannopoulos and Perez estimate the variances and covariances of each one of the test assets with the market using an MGARCH model. Betas for CAT bonds are found to be very close to zero until the collapse of Lehman Brothers. They start to increase around September 2008, reaching a maximum value of 0.014 in January 2010 and coming back to close to zero at the end of the sample period. However, the economic significance of these betas is questionable even at the maximum value.

Carayannopoulos and Perez cannot deny the economic importance of the effect of the financial crisis on the corporate bond market. During the period from the end of 2008 until the end of 2009, the hedge ratio became positive with a maximum value of 0.13 observed in September 2008. Results are not as clear for the government bond market. They can still observe the effect of the financial crisis with a big jump on hedge ratio from  $-0.17$  on September 2008 to zero on October 2008.

However the evolution of the government bond beta seems to be much more complicated and unstable. Overall, the relative change of CAT bonds hedge ratios during the financial crisis is extremely small compared with that of other financial assets. Thus, Carayannopoulos and Perez conclude that CAT bonds constitute an asset class that provides superior diversification opportunities to prudent investors.

Finally, as an additional test, they compare the hedge ratios between CAT bond and corporate bond returns. This analysis is interesting in the sense that an investor may introduce CAT bonds in a diversified portfolio consisting of corporate bonds in order to hedge the negative impact of the financial crisis. The expectation is that, if CAT bonds are a good hedging instrument relative to government bonds, then their hedge ratios should not be significantly affected by the crisis. The behaviour of hedge ratios confirms their results; hedge ratios for CAT bonds are very close to zero during all sample periods, and they are not significantly affected by the crisis. Government bond hedge ratios drop significantly after September 2008 and remain low until the end of the crisis. Carayannopoulos and Perez conclude that the CAT bond market is a useful source of diversification in the context of a corporate bond portfolio.

### **Conclusion**

Carayannopoulos and Perez's main findings are threefold. First, their results imply that CAT bonds were not zero-beta assets during the financial crisis. The dynamic correlation coefficients of CAT bonds with the market and the corresponding hedge ratios are statistically significant during the crisis. They argue that weaknesses associated

with both the structure of CAT bond trust accounts and the composition of the assets used as collateral in the trust accounts are the main drivers of these results. Assets used as collateral in these trust accounts proved to be of lesser than expected quality and, furthermore, counterparties in swap agreements put in place in an effort to immunise collateral asset returns from market fluctuations were exposed to considerable credit risk or even defaulted during the crisis.

Second, Carayannopoulos and Perez find evidence that the effects of the financial crisis on CAT bonds disappear by the beginning of 2011, as the correlations with the market return to their statistically insignificant pre-crisis levels. These results may imply that the new and improved collateral structures created for CAT bonds issued after 2009 have been perceived as effective by market participants. These new structures attempt to enhance the credit quality of the collateral asset and include limits to the type of assets permitted in the collateral account, and constant monitoring and reporting of the collateral account balance.

Finally, and more importantly, an analysis of estimated hedge ratios of CAT bonds and other assets provides evidence that, despite the impact of the financial crisis on them, CAT bonds are still a valuable source of diversification and an asset class that should not be ignored by investors. Furthermore, steps taken after the crisis to improve the structure of the CAT bonds and further isolate investors from market risks have probably improved the diversification benefits of this asset class even further. To what extent, however, would be the subject of further research in the context of future events that could put pressure on and increase systematic risk in the financial markets.

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## Why Choose an Insurance Career? A Comment

by J. François Outreville\*

The study on the university students' preferences regarding the insurance profession presented in a recent issue of *The Geneva Papers*<sup>7</sup> investigates a problem that has been debated and researched for decades, i.e. why are the image and perception of insurance business by students so old-fashioned?

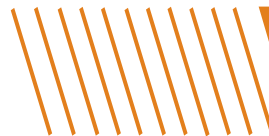
The negative attitude of students towards sales and sales professions is a phenomenon that has been demonstrated by numerous studies in the past. Dubinsky (1980; 1981) found that students' negative perceptions might be based on several factors including: stereotypes of sales people, low prestige and status, and inadequate communication of sales job characteristics by recruiters.<sup>8</sup> A 1995 Gallup poll found that car sales were considered the least ethical occupation among 26 careers considered, with insurance salespeople voted 23rd (Butler 1996). Spillan *et al.* (2007) and Barat and Spillan (2009) found that students perceive the sales profession as an occupation with low status, low prestige and no creativity.

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<sup>7</sup> Acharyya and Secchi (2015).

<sup>8</sup> Most people view sales people as pushy, dishonest, aggressive and annoying according to a study done by Gallup (Futrell 2007).





Studies of university students' preferences regarding the insurance profession have been performed in the 1980's both in the United States<sup>9</sup> and in Canada,<sup>10</sup> and it is interesting to note that the conclusions have not changed today in this pilot study performed in the U.K. by Acharyya and Secchi (2015). To even more emphasise the problem, just recall the conclusion of the paper by Hollman and Murray in 1981: "...the situation has not changed since the first studies carried out in 1963 by the National Opinion Research Center."

The behaviour of students towards future expectations for their job has also been proposed as a major reason for the lack of interest for the insurance profession.<sup>11</sup> A recent report by Deloitte (2014) confirms, 30 years later, the gap between aspirations and expectations in the insurance sector. The findings in the study by Acharyya and Secchi (2015) complement the information on the perception of students and confirm that environmental factors positively affect the choice of students, but also that more awareness or familiarity with the profession would impact on their decision.<sup>12</sup> This result was already mentioned more than 30 years ago and unfortunately, although a lot of efforts have been made, insurance education in colleges and universities is still below expectations. There is even a serious risk that the insurance industry will face a shortage of skilled insurance professionals in the next few years due to the existing ageing population.<sup>13</sup> Similar situations exist also in the banking industry<sup>14</sup> and the accounting sector.<sup>15</sup>

Compared to its role in the economy, insurance remains a marginal topic in economics or business administration and management, both in terms of research interest and teaching. One of the reasons commonly proposed 30 years ago was the lack of interest of economists for the concepts of risk and uncertainty. This situation has changed today with a greater involvement of the industry in higher education through sponsored chairs, fellowships or research grants. To be convinced, it is sufficient to look at the list of journals stating an interest and publishing papers in the field of insurance, risk and risk management.

However, activities, directly or indirectly related to the production of insurance are dealing with intangible outputs, and the lack of transparency explains the lack of student interest in studying insurance. Adding the weak reputation of the industry, that correctly or not, the general public and students carry, gives another explanation for a situation that already existed decades ago. Insurance is unpopular across the globe, in nearly all countries surveyed in the Deloitte report,<sup>16</sup> business students place insurance in the bottom quartile of industry sectors.

A recent report, another one, published by IIS (International Insurance Society)<sup>17</sup> calls for a need to broaden accessibility and increase the quality of risk management and insurance (RMI) education programmes worldwide. The Geneva Association has been at the front line of these ideas for years by promoting insurance education and research, but the question is still open: why choose an insurance career? Future research should not only focus on the top factors and demographics that drive the human capital attraction and retention challenges in the insurance industry, but also explain the reasons for the existing gap between aspirations and expectations of university students regarding the insurance profession. Though one study used a student sample and these students' personal, non-demographic traits to help develop a measurement to assess attitudes towards salespeople (Black & Sherwood, 2011), there is no known study that has explored the impact of personal traits on students' attitude towards a sales career. Although the idea of risk may be difficult to conceptualise, risk is of considerable importance for the behaviour of economic agents (Outreville, 2014). A quest for experimental/laboratory studies explaining the behaviour of students towards the notion of prestige aversion/seeking (by analogy to the notion of risk aversion/seeking) associated to different professions would probably be an interesting approach to this problem.

9 Hollman and Murrey (1981).

10 Outreville and Zins (1984).

11 Dubinsky and Yammarino (1985); Outreville and Zins (1987).

12 See the report by McKinsey and Co (2010) but also the white paper by the Griffith Foundation (2011).

13 Cole and McKullough (2012).

14 Dalton (2004).

15 Thomson (2009).

16 Deloitte (2014)

17 Kwon (2014).

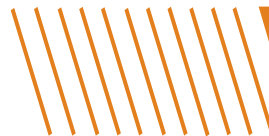
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## Summary of the 17<sup>th</sup> ACCE meeting

by Christophe Courbage

On 24–25 March 2015, the 17<sup>th</sup> meeting of the Annual Circle of Chief Economists (ACCE) took place in Paris, graciously hosted by SCOR. The general theme of the seminar was 'Insurance prospects in a changing risk environment'. The meeting brought together a special group of chief insurance economists and strategists from Members' companies of The Geneva Association to interchange ideas and views on current, relevant economic affairs in insurance. About 15 participants attended the meeting representing Allianz, Hannover Re, Zurich Insurance Group, Munich Re, Generali, SCOR, Swiss Re, the Insurance Information Institute and the Italian Insurance Association (ANIA).



The first speaker was Vincent Lopez, Head of Actuarial R&D at SCOR Global Life, who made a presentation on the theme of pandemics, addressing the potential consequences of pandemics using the Ebola outbreak as a case study. Ebola is a zoonotic virus, i.e. channelled through animals before being channelled through humans. The virus had huge impacts not only on public health systems, which proved to be highly non-resilient to such crisis, but also on local economies. This calls for the development of universal health coverage, possibly leading to opportunities for the intervention of insurers. Pandemics can be a key concern for insurers and particularly reinsurers, as the weight of stand-alone pandemic risk in reinsurers' balance sheets is particularly heavy. This imposes close risk monitoring and (partial) coverage strategies through mortality bonds. Ebola clearly created protection awareness in regions where institutional investors now count on the private sector to help support the local economy and public health quality development. As demography will be extremely dynamic over the course of the 21<sup>st</sup> century in these regions, it may be now the right timing for (re)insurers to tackle the need for death/disability/health coverage and associated insurance. This could be done through microinsurance for individuals, group insurance for local firms, and specific group programmes for foreign companies that mostly rely on self-insurance.

The second speaker, Arne Holzhausen, Head of Insurance and Wealth Markets at Allianz SE, addressed the long-term impact of the recent financial crisis on the insurance industry. The legacy of this financial crisis for the insurance industry is fourfold: low yields, secular stagnation, more regulation and a global power shift. Starting with the first issue, nominal interest rates have been falling with trend growth since the mid-70s and recently dropped due to easy monetary policy. High saving (due to an ageing population and an uncertain environment) and low demand for investment (due to risk-averse behaviour, low population growth and possibly the digitalisation of the economy) also explained the fall in interest rates. As a consequence of low yields, the insurance industry needs to look for alternative investment and new product architecture, including those with reduced guarantees. The insurance industry is also confronted with low potential output growth for the time being, which limits the development of insurance markets in many countries and therefore, calls also for innovative and new products, especially in the P&C lines of business. The third issue relates to the rise of regulation whether it concerns risk based capital regimes, conduct of business, globalisation of supervision or convergence amongst the financial industries. This leads to a higher cost of capital, higher barriers to entry, possibly excessive consumer protection and less long-term investment. Finally, a global power shift to Asia and a more multipolar insurance world is developing fast. The outlook for the insurance industry in a few decades could be lower profitability, measured growth, diversified distribution, higher risk and possibly new competitors.

The third speaker, Roman Lechner, Director of Economic Research & Consulting, at Swiss Re, made a presentation on 'Liability claims trends: emerging risks and rebounding economic drivers'. Due to economic and social factors such as low inflation, low wage growth, tort reform and improvements in medical care costs, liability claims have been lower than expected since 2008. Over the long term, claims growth typically outpaces economic growth, and the expectation is for a return to this more normal growth path, which in turn should push up demand for liability insurance. Redundant claims reserves from prior-year claims have been another factor supporting insurers' profitability in recent years. However, a pick-up in liability claims growth should drain reserves, and an accelerated depletion of reserves in the case of severe claims could erode the profitability of existing books of business. Liability risks are challenging to underwrite and price, due to their long-tail nature, which often results in claims being settled many years after business is written. Insurers need to take advantage of their underwriting expertise to improve pricing. Likewise, they must maintain capital strength to manage the long-tail nature of the business and the rising claims costs, such as those from the growing litigation funding industry. However, new risks and stronger economic growth should increase claims severity and generate more demand for liability insurance. A number of technological, social and regulatory changes will drive liability claims in the near future. Insurers need to innovate to capture market opportunities. With big data and forward-looking models, insurers can perform statistical analysis to better understand the key drivers of risks.

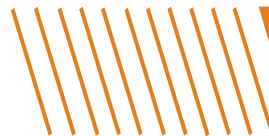
The fourth speaker was André Masson, Research Director at the CNRS, EHESS and Paris School of Economics, who addressed the topic of 'French savers in the current crisis: preferences, financial expectations, and the demand

for savings and life insurance'. Mr Masson presented some recent works based on various surveys and scoring methods. He showed that, from 2007 to 2011, there exists an overall stability of risk and time preferences of French households. Preferences are heterogeneous between households and have a significant explanatory power of wealth and portfolio choices. Preferences are formed early in life and depend on the environment, social origins and parents' own preferences. These recent works also showed French households have a lower willingness to take risks in saving and portfolio choices. This is especially due to higher exposure to (background) income risk ('hit by the crisis') and to more pessimistic future income and asset price expectations. The question is therefore to know how to generate more 'enterprising' behaviours, i.e. more risky and long-term saving and investment. It is not easy to change preferences and abilities over the short-medium run. One option is to improve financial education in order to change expectations and understanding, which is limited and often not lasting. Another option is to create a safer and more stable economic environment. This would certainly call for preserving the Welfare State, especially for the elderly.

The fifth speaker, Benno Keller, Head of Research and Policy Development at Zurich Insurance Company, made a presentation on 'Big data in insurance underwriting: boon or bane?'. Big data technologies in insurance underwriting, and especially predictive underwriting, have the potential to become a step change in the understanding of individual risks. The benefit of knowing risk levels is highly valuable in terms of risk mitigation and prevention, as long as the reduction in expected loss exceeds costs for mitigation. Big data is likely to reduce the cost of risk mitigation, e.g. through targeted investments and tailored incentives, and allows for risk-based premiums which provide mitigation incentives. At the same time, there is a regulatory trend towards banning the use of risk information in underwriting. Premium differentiation based on individual risk criteria is increasingly being perceived as 'unfair'. The presentation looked at the effect of banning the use of private information in various insurance markets. Banning the use of gender as a risk indicator for motor insurance is unlikely to significantly reduce welfare, since the cost of adverse selection is low and the benefit of risk mitigation is not gender-related. Banning the use of genetic information in life insurance is likely to involve an increasing social cost, as genetic predisposition may signal high probability and the current cost of adverse selection is low because most individuals do not possess genetic information. Banning the use of geolocation is very likely to be welfare-reducing as the cost of adverse selection is high for non-mandatory insurance and there is large potential from mitigation. Telematics/activity trackers are likely to be welfare-enhancing, as risk is largely driven by behaviour and the cost of adverse selection is low.

Finally, the meeting ended with a presentation from Robert Hartwig, President of the Insurance Information Institute on the topic of 'Alternative capital: impacts on global reinsurance and insurance markets'. The presentation described the many forms of alternative capital, with an overview of the various ways capital enters the marketplace, paying considerable attention to the structure and function of insurance-linked securities, especially catastrophe bonds. It also assesses the impact alternative capital has had on the marketplace. Conclusions are: (i) though the bulk of new capital continues to enter the marketplace through traditional means such as retained profits, alternative structures have become an important source of new capital; (ii) the increase in capital in recent years has contributed to the decrease in reinsurance rates over the past few years, particularly in the property catastrophe business; this may be creating a trickle-down effect into other reinsurance lines; (iii) the emergence of alternative capital appears to be an important factor in a recent wave of reinsurance mergers.

Once again, the ACCE seminar proved to be very useful in addressing the current strategic affairs in insurance and lead to an active exchange of opinions and animated discussions among the participants.



## Ernst Meyer Prize Winner for 2014

*The Geneva Association awards the prestigious Ernst Meyer Prize (CHF 5,000) annually for university research work in the form of a doctoral thesis which makes a significant and original contribution to the study of risk and insurance economics.*

*The 2014 Ernst Meyer Prize, awarded in 2015, went to Maria Polyakova for her Massachusetts Institute of Technology (MIT) PhD dissertation entitled 'Regulation of Public Health Insurance'. We wish to congratulate her and give our readers the opportunity to learn more about her work.*

### 'Regulation of Public Health Insurance', by Maria Polyakova

The research in my thesis is motivated by the recent development in the health insurance systems of many developed countries—the ever deeper intertwining of private and public players. The idea of competitive markets is increasingly entering the health insurance landscape, while government regulation and subsidies increasingly replace direct public financing of health care. What role, if any, should the government play in the design and operation of health insurance? How can we determine optimal policies that guide coverage requirements, stringency of enrolment mandates, risk-adjustment systems, subsidy levels, the degree of consumer nudging and enrolment help, all while creating the right incentives for insurance companies that would maximise the overall efficiency of the health insurance system?

My dissertation research attempts to make a contribution to the thinking about some of these questions. In the first chapter, I analyse the interaction of adverse selection, switching frictions and regulation in a large prescription drug insurance programme in the U.S.—Medicare Part D. I first document a significant degree of adverse selection between more and less generous plans in Medicare Part D, some of which is countervailed by Medicare's risk adjustment. I then further show evidence of substantial inertia in individuals' choices of insurance plans. Only fewer than 15 per cent of enrollees appear to change their insurance plan during annual open enrolment periods, despite significant changes in the relative attractiveness of the roughly 40 choices of plans that these enrollees face.

I then consider the role of costly switching in this dynamically evolving programme for the allocation of risk across plans, showing that whether switching frictions exacerbate or ameliorate the selection problem depends on the evolution of the contract features relative to the initial conditions. In particular, nudging consumers to reconsider their annual choices of insurance does not need to lead to a starker unravelling of the market if the generosity or prices of contracts are becoming closer to each other over time. Such development of the contract space is not uncommon in practice, especially in insurance markets that are often subject to minimum coverage regulation.

As a corollary to this mechanism, I show that costly switching plays an important role in determining the risk-sorting outcomes of the minimum standard policy that is one of the central regulatory instruments in Medicare Part D and plays the key role in determining the evolution of the contract space over time. If policymakers raise the minimum standard over time (as is the case in Medicare Part D), the contract space may become narrower. The least generous contracts that are offered exactly at the minimum standard threshold become more generous and hence, closer to the most generous contracts on the market. If enrollees in these contracts are inertial, these changes to minimum standards do not lead to a reallocation of risk, which may have been one of the goals of changing the minimum standard policy to start with.

To demonstrate this point in Medicare Part D, I simulate how inertia may alter the impact of 'filling' the Part D donut hole as implemented under the Affordable Care Act. I find that, absent any switching costs, this regulation would have eliminated the differences in risks across contracts; however, in the presence of the switching costs that I estimate, the effect of the policy is largely muted.

In the spirit of the theory of second best, the results of this chapter demonstrate the importance of accounting for the interaction among different market failures in health insurance markets and how the correction of one market

failure, such as demand-side inertia, may change the effect that regulatory instruments targeted at correcting a different market failure, such as adverse selection, have on the market.

In the second chapter of my thesis (which is a joint work with Stephen Ryan and Francesco Decarolis), we consider a different set of issues regarding the regulatory design in the Medicare Part D programme. The beneficiaries enrolling in Medicare Part D are heavily subsidised by the federal government. There are many reasons why the government may decide to subsidise the purchase of health insurance, ranging from paternalism to externality arguments. We discuss some of these in the chapter. Suppose, however, the government has already decided that it wants to provide subsidies—what should the level of subsidies be? We attempt to shed light to this complex question.

Currently, the level of subsidies in Medicare Part D is determined as follows. Insurers submit annual 'bids' to Medicare. These bids are supposed to reflect the amount of desired revenue for an average-risk enrollee. Medicare takes a weighted (by lagged enrolment) average of these bids for the whole country, then takes around 70 per cent of this average—this amount then becomes Medicare's subsidy to enrollees and insurers for that year. In our chapter we show that, in terms of its total efficiency properties, this procedure is almost equivalent (although potentially more costly administratively) to giving consumers optimally set flat vouchers for their purchase of health insurance. This similarity, however, is very fragile, as it relies on the fact that many aspects are included in the averaging, muting the incentives of the insurers to attempt to 'game' the mechanism. We show that unpacking some parts of the averaging bundle may increase such incentives. We demonstrate that, in the extreme scenario where the government subsidised 70 per cent of each bid directly without the averaging, the bids and prices would increase dramatically.

Conceptually, we highlight two economic tensions that are important when thinking about subsidisation policies in publicly subsidised, privately administered environments. First, subsidies may lead consumers to select inefficient amounts of coverage by substituting across insurance options with different relative subsidies. This mechanism is important both within a market—subsidies may lead individuals to select relatively more generous plans, even though the individuals do not value additional coverage at the full unsubsidised extra price that is paid for it. It is also important across markets—in the presence of, for example public and private options, sorting may be inefficient with subsidies. Second, under imperfect competition, which typically characterises health insurance settings, the exact design of the subsidy mechanism may substantially affect insurers' pricing incentives, and may thus be crucial for the allocating efficiency of the market.

In the case of Medicare Part D, we find inefficient sorting of seniors across plans both on the extensive margin—subsidies make stand-alone Part D plans more attractive relative to other insurance sources; and on the intensive margin—subsidies create some distortions in which contracts are purchased. On the supply side, we find that the current subsidisation policy uses a reasonably effective decentralised instrument—the current mechanism achieves a level of total welfare close to that obtained under an optimal voucher scheme; however, the decentralised solution is far from the social planner's first best.

In the third chapter of my dissertation, I turn to a different institutional setting. I consider the German health insurance design, which provides a unique opportunity to analyse the interaction between a public health insurance system with non-risk-based community-rated pricing, and a private health insurance system that fully underwrites individual risk in a long-term annuity-style contract.

Conventional wisdom suggests that a private health insurance option existing in parallel to a public option, which typically cannot decline coverage or underwrite risks, may endanger the public option by cream-skimming the good risks out of the public system. In this paper, I present empirical evidence for a case where this conventional wisdom does not find support.

I utilise the institutional setting in Germany, where there exists a well-developed non-group private health insurance market in parallel to a statutory system. The statutory system has a typical public option structure—the insurers in that system are not allowed to reject enrolment and do not underwrite risks. The insurers in the private system, on the other hand, can reject enrolment and underwrite risks. Despite this, I find no clear evidence of cream-skimming



of good risks outside of the statutory system. Here, it is important to underline, however, that this finding relies heavily on the quality of the survey data used for analysis, and on the measures of risk defined as individuals with lower self-reported outpatient and inpatient utilisation rates. A more definitive answer to this question can only be given with detailed administrative data akin to Medicare records that track the actual spending of the enrollees that switch between the public and private systems.

To explain this puzzling lack of strong selection patterns (again, see disclaimer above), I first test whether demand for the private insurance exhibits strong heterogeneous preferences that had been shown in the literature to be able to significantly mute selection. Indeed, I find evidence that is consistent with the idea that people may have a preference for private insurance for reasons completely unrelated to risk. For example, private insurers in the German system offer more convenience and 'luxury' in health-care utilisation, including slightly broader provider networks, better hospital amenities, and (at least perceived) shorter waiting times. It is then not surprising that I find that individuals with preferences for convenience and high marginal value of time, are more likely to enrol in the private system.

More broadly this suggests that if individual demand for, for example, broader networks or shorter wait times is related to the value of time rather than health risk, these preferences may entirely mute cream-skimming propensity across the systems. This finding is also consistent with the idea that choice in insurance may be efficient: there is scope for horizontal rather than purely vertical or risk-protective differentiation of health insurance contracts that is valuable for individuals.

In addition to exploring the role of heterogeneous preference in the German market, I argue that the second reason why cream-skimming may not become a central feature of this market is the incentive structure created by long-term contracts of private insurers. Instead of offering annual pooling prices that are common in the U.S., insurers offer a unique annuity-style contract to each individual, whose risk is measured at the time of enrolment, and reclassification of risks is prohibited by the regulator. This style of insurance contracting creates an incentive to enrol in insurance as early as possible, when there is a lot of informational uncertainty about future health-care risks for both the insurer and the enrollee, thus muting the informational scope for effective cream-skimming.

## Geneva Association/IIS Research Award Winners 2015

*The Geneva Association and the International Insurance Society (IIS) research award is designed to foster original research in the insurance area addressing issues of concern to global insurance leaders by examining subjects which directly influence business operations and operational business issues on a practical level.*

*The organisers—The Geneva Association and the IIS—are pleased to announce the winners of the 2014 Geneva Association/IIS Research Awards Partnership. The selected Shin Research scholars were awarded USD 5,000 and invited to present their work at the International Insurance Society's 51<sup>st</sup> Annual Seminar in New York, 14–17 June 2015.*

Here are the two abstracts.

### Overcoming Barriers to Microinsurance Adoption: Evidence from the Field, by Shawn Cole

This paper provides an overview of the academic literature on microinsurance adoption in emerging markets, with a particular emphasis on randomised control trials. It discusses what we know, what we can reasonably hope to know using the extensive work on microcredit as a comparator, and what the available evidence implies for public policy. Particular attention is paid to the case for a greater role for the government in supporting the development of microinsurance. This paper identifies many promising areas for government action to speed up the development

of private-sector insurance policies: (i) constructing infrastructure to reduce transaction costs, such as improving mobile payment systems; (ii) continuing to search for cheap, cost-effective ways to improve citizens' financial decision-making; (iii) encouraging insurance-providers, employers and governments to develop effective 'nudges' to guide populations towards effective risk coverage; (iv) implementing transparent consumer protection rules along with fast, efficient and fair complaint resolution; (v) encouraging the private sector to continue to innovate in the contract space; (vi) enabling individuals to automatically use cash transfers they receive to pay for insurance policies.

## The Role of Insurance in Reducing Losses from Extreme Events: The Need for Public–Private Partnerships, by Howard Kunreuther

This paper describes the challenges that consumers, insurers and insurance regulators face in dealing with insurance for low-probability, high-consequence events. Given their limited experience with catastrophes, there is a tendency for all three parties often to engage in short-term intuitive thinking rather than long-term deliberative thinking when making these insurance-related decisions. Public–private partnerships can encourage investment in protective measures prior to a disaster, deal with affordability problems and provide coverage for catastrophic risks. Insurance premiums based on risk provide signals to residents and businesses as to the hazards they face and enable insurers to lower premiums for properties where steps have been taken to reduce risk. To address issues of equity and fairness, homeowners who cannot afford insurance could be given vouchers tied to loans for investing in loss reduction measures. The National Flood Insurance Program provides an opportunity to implement a public–private partnership that could eventually be extended to other extreme events.

## Geneva Association Prizes and Research Grants

### Call for Submissions for the Ernst Meyer Prize 2015

The Geneva Association awards the prestigious Ernst Meyer Prize annually for university research work in the form of a doctoral thesis which makes a significant and original contribution to the study of risk and insurance economics.

Applications for the award should include all of the following:

- an electronic version (pdf) of the thesis
- an abstract of 1,000–1,200 words in English
- two recommendations (in English), each providing a review of the submitted work
- a curriculum vitae in English.

Further requirements:

- The thesis should have been accepted by the PhD committee during the calendar year preceding the submission deadline.
- Submissions are possible in one of the following languages: English, French, Spanish and German.
- The prize is CHF 5,000.
- The deadline for the Ernst Meyer Prize 2015 is **31 January 2016**.

Applications should be addressed to [secretariat@genevaassociation.org](mailto:secretariat@genevaassociation.org), The Geneva Association, 'Ernst Meyer Prize', Talstrasse 70, CH-8001 Zurich.

For a full list of past winners, please go to <https://www.genevaassociation.org/media/585074/ga2013-ernst-meyer-prize-winners.pdf>





## Geneva Association Research Grants

Each year, The Geneva Association awards up to two research grants for submissions—usually doctoral theses carried out in the field of risk and insurance economics.

Each grant is worth CHF 10,000 and covers a period of 10 months. The grants are primarily intended for research for a thesis leading to a doctor's degree in economics. Suggested themes and subjects for research grants are:

### **Economic theory:**

- Uncertainty: Imperfect information in deterministic versus indeterministic models
- Insurance and risk management in the service economy
- Insurability and economic fundamentals
- Insurability: privatisation processes and public intervention
- The problem of the reinsurer of last resort
- Credibility theory (in actuarial sciences) and economics of scale
- Comprehensive theories of risk: defining, comparing and integrating pure risks, financial and entrepreneurial risks
- Fiscal policy, solidarity and private insurance
- Monetary stability and its impact on pure risk management
- Systemic risks, the liability portfolio of insurance and pure risk management
- The changing role of capital in the contemporary service economy with respect to financial institutions
- The economic value of human life.

### **Economic practice:**

- Moral hazard and fraud in the management of pure risks and insurance
- Derivatives and their role for insurance on the assets and on the liability side
- The economics of health and medical care
- The development of technology in specific sectors and their impact on the insurability of risks
- Reinsurance markets
- The role of government, risk management and insurance institutions with reference to catastrophic and environmental risks
- Financing the life cycle, in particular with regard to the increasing life expectancy of persons over 60: the role of insurance and public institutions
- Productive activities, employment and health
- National and international institutions, their impact on regulation and solvency rules in the insurance market (European Union, World Trade Organization, etc.)
- Fiscal policy and reserving for large low-frequency risks
- Distribution strategies in insurance
- Emerging markets: Problems and opportunities.

For more information please see: <https://www.genevaassociation.org/prizes,-awards-and-grants>

## ANNOUNCEMENT

## 12th Health and Ageing Conference

### Insuring Health Care for the Elderly in Asia

16–17 November 2015

Singapore, Singapore College of Insurance

Hosted by the Singapore College of Insurance and supported by ACR Capital Holdings

#### Day 1 Monday 16 November

Welcoming Remarks

##### Session 1. Longevity and health determinants of the elderly in Asia

- Longevity evolution: international comparisons and future prospects. Analysis of Asian data, *Dr Daria Ossipova, Head of R&D—Life related risks, SCOR Global Life, Paris*
- Ageing and health of older persons in the Asia–Pacific region: success and challenges, *Prof. David Phillips, Chair Professor of Social Policy, Lingnan University, Hong Kong*

##### Session 2. Health care and new health technology for an ageing population in Asia

- Health care for ageing—Making health care accessible and affordable through technology, *Swami Swaminathan, Executive Chairman, Manipal Health Enterprises, Bangalore*
- Health care technology management—Europe and Asia walking together, *Dr Nicola Pangher, General Manager Foreign Operations, TBS (Telematic & Biomedical Services Group S.p.A), Trieste*

##### Session 3. Financing health care for the elderly in Asia

- The implications of ageing on health costs and health policies: evidence from the East Asia–Pacific region and beyond, *Aparnaa Somanathan, Senior Economist, World Bank's East Asia and Pacific Human Development Unit*
- Fiscal sustainability of health-care financing in Asia: challenges and responses, *Dr Kelvin Bryan Tan, Director, Policy, Research and Economics Office, Ministry of Health, Singapore*

##### Session 4. Insurance opportunities to cover health care for the elderly in Asia

- Funding care costs in ageing Asia—the consumer perspective on funding the costs of old-age care and the role of the insurance industry, *Marianne Gilchrist, Director, Head of Solutions Groups Asia, Swiss Reinsurance Company Ltd, Korean Branch*
- Current and future developments of long-term care needs in China and opportunities for insurers, *Dr Xian Xu, Director, China Insurance and Social Security Research Center, Fudan University, Shanghai Branch*
- Innovative products and service solutions for the elderly, *Dr Olaf Kliesow, Head of Inforce Management & Business Development, Global Life & Health, Allianz SE*

#### Day 2 Tuesday 17 November

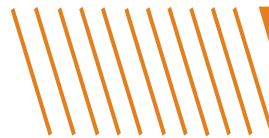
Keynote Address: Asia's diabetes challenge, *John Tan, Group Chief Executive, ACR Capital Holdings, Singapore*

##### Session 5. Insurance solutions for elderly health-care coverage in Asia

- Securing sustainable insurance markets for old age health care—lessons for Asian economies, *Freddy Schnitzler, International Health Consulting, Former Vice President of Samsung Fire & Marine Insurance*
- Using risk-based incentives and wellness programmes to foster healthier behaviours, *Jeff Wu, Regional Head of Accident and Health, Generali Asia*
- Product innovations in critical illness, *PartnerRe representative*

Further information is available at

<https://www.genevaassociation.org/events/2015/12th-health-ageing-conference>



## CALL FOR PAPERS FOR *THE GENEVA PAPERS*

### Call for Papers

The Geneva Association is pleased to announce  
a special **July 2016** issue of

***The Geneva Papers on Risk and Insurance – Issues and Practice***

on

### **Risk Sharing and Insurance for Catastrophic Events**

We encourage you to submit contributions dealing with the institutional implications of insurance contracts and risk-sharing agreements, including public support, for catastrophic loss. Papers could *inter alia* deal with the following issues:

- International comparison of disaster risk management systems, encompassing the full spectrum of the disaster management cycle, including private prevention, resilience infrastructures and insurance, as well as *ex post* risk-sharing solutions for financial risk (such as catastrophe funds or relief programmes).
- Risk characteristics and informational requirements of welfare-enhancing risk-sharing contracts in natural disasters and other catastrophic loss.
- The institutional implications of 'solidarity' and unitary pricing of natural hazards insurance, e.g. in terms of social cohesion and defective behaviour, transaction costs, the purpose and limits of risk classification, land markets distortions, etc.
- Comparison of behavioural and economic instruments of natural hazard management in insurance, including moral suasion, public risk information, nudging and choice architectures, premium rebates and subsidies for risk prevention, etc.

Suggestions for other topics will be considered by the editors.

All contributions will go through a refereeing process. The editors for this special issue are Jeroen van Aerts (University of Amsterdam), Reimund Schwarze (European University of Frankfurt/O.) and Gert G.Wagner (DIW Berlin). Papers should be submitted electronically via the website of The Geneva Papers (<http://gpp.msubmit.net/cgi-bin/main.plex>) by **2 October 2015** at the latest.

For further information on *The Geneva Papers*, visit <http://www.palgrave-journals.com/gpp/>

For further information about this special issue, please contact Reimund Schwarze at [schwarze@europa-uni.de](mailto:schwarze@europa-uni.de)

## Call for Papers

The Geneva Association is pleased to announce  
a special **October 2016** issue of  
***The Geneva Papers on Risk and Insurance – Issues and Practice***  
on  
**Health**

We encourage you to submit contributions related to the following areas:

- The impact of integrating an ageing population in health insurance systems
- New health technology and insurance
- Development of health care systems and the capitalisation debate
- The interaction of public and private systems in health care provision
- Insuring and managing long-term care risks
- Health issues for an ageing population in the workplace
- Risk classification in health insurance
- Climate risks and its impact on health and insurance.

Suggestions for other topics will be considered by the editors.

All contributions will go through a refereeing process. The editors for this special issue are Christophe Courbage (The Geneva Association) and John Nyman (University of Minnesota). Papers should be submitted electronically via the website of *The Geneva Papers* (<http://gpp.msubmit.net/cgi-bin/main.plex>) by **9 December 2015** at the latest.

For further information on The Geneva Papers, visit <http://www.palgrave-journals.com/gpp/>

For further information about this special issue, please contact Frederick Schlaghaft at [frederick\\_schlaghaft@genevaassociation.org](mailto:frederick_schlaghaft@genevaassociation.org)



## OTHER CALLS FOR PAPERS

### Call for Papers

#### **Southern Risk & Insurance Association (SRIA) 2015 Annual Meeting**

22-24 November 2015, Royal Sonesta Hotel, New Orleans, Louisiana

You are encouraged to submit a proposal to present research findings at the 2015 meeting of the Southern Risk & Insurance Association (SRIA). Papers on any risk or insurance related topic are welcome. Specific subject areas include, but are not limited to, insurance law or regulation, public policy, economics, finance, health care, international issues, employee benefits, or risk management.

Please submit an executive summary (not exceeding three pages) that describes the purpose, expected results, and importance of the research (completed, full papers may also be submitted). The names and affiliations of all co-authors, with telephone and fax numbers and e-mail address (if available) of the designated contact person, should be provided on a separate cover page attached to the proposal. Also on the cover page, please include 3–5 keywords describing the topic of the submitted research.

Proposals/papers from doctoral students are encouraged. Additionally, doctoral students that have papers accepted for presentation at the meeting will be invited to submit a full paper for the “Best Paper Award.”

The deadline for submission is Monday, **17 August 2015**. This deadline will not be extended. Submitting authors will be notified of the outcome of their submissions via email within three weeks of the submission deadline.

Proposals may be submitted via regular mail, fax, or e-mail. However, electronic proposals are preferred and should be submitted as a Word or PDF attachment to Lorilee Medders, SRIA Program Chair, Florida Catastrophic Storm Risk Management Center, College of Business, Florida State University, 821 Academic Way, Tallahassee, FL 32306-1110, Phone: 850-645-8393, Fax: 850-645-8391, Email: [lmedders@business.fsu.edu](mailto:lmedders@business.fsu.edu)

For more information about SRIA, please visit: [www.southernrisk.org](http://www.southernrisk.org)

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### Call for Papers

#### **Risk Theory Society Annual Seminar**

1–3 April, 2016, St. John’s University, New York, New York

**Submissions due 15 December 2015**

The Risk Theory Society is a group of economists, financial economists and actuaries who undertake theoretical and applied research in the areas of insurance economics, financial economics related to insurance markets, actuarial science and, more generally, in the economic analysis of risk and uncertainty. Membership in the society is earned by presenting a paper at the annual seminar and forfeited by missing two consecutive meetings.

The society invites interested parties to submit papers for the 2016 meeting. Each paper accepted for the meeting is allowed 1 hour and 15 minutes for presentation and defence by the authors. The first 20 minutes of that time are reserved to be free of interruption other than for questions of clarification. After the grace period, discussion is typically vigorous.

Over the past 10 years, the number of submissions ranged from 42 to 69 with an average of 51. Ten papers were selected each year. Although we accept submission of a five-page abstract, most submissions and most accepted papers were in full draft or essentially completed form.

Submissions are due on **15 December 2015**. The programme committee will notify authors of accepted papers by the end of January 2016, or soon thereafter. Accepted papers must be completed and sent for posting on the Risk Theory Society web page by 1 March 2016.

Submissions should be e-mailed as attachments in the Adobe portable document format (pdf) by **15 December 2015** to Professor Greg Niehaus, Secretary of the Risk Theory Society, Darla Moore School of Business, University of South Carolina, E-mail: [gregn@moore.sc.edu](mailto:gregn@moore.sc.edu)

For more information, contact Greg Niehaus or visit the Risk Theory web site at <http://aria.org/rts>. For details regarding local arrangements for the 2016 seminar, please visit the web site or contact Professor Mark Browne at [brownem1@stjohns.edu](mailto:brownem1@stjohns.edu)

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## Call for Papers

### Western Risk and Insurance Association 2016 Annual Meeting

3-6 January 2016, Wailea Beach Marriott Resort & Spa, Maui, HI

You are encouraged to submit a proposal to present research findings at the 2016 meeting of the Western Risk & Insurance Association (WRIA). Papers on any risk management or insurance related topic are welcome. WRIA meetings are known for their relaxed, friendly, and collegial atmosphere. This meeting should prove to be another enjoyable and educational event, and we hope to see you there!

Please submit a research proposal of no more than three pages, double-spaced, that describes your proposed presentation at the meeting. Any/all topics related to risk management, insurance, employee benefits, financial planning, estate planning, and other insurance-related topics will be considered. Your proposal must include the names and affiliations of all co-authors, with all phone, fax and e-mail addresses with designated contact, on a separate page.

Proposals from doctoral students are encouraged, and completed papers will be considered for the Dorfman Award. Please see [http://www.wria.org/dorfman\\_scholarship.html](http://www.wria.org/dorfman_scholarship.html) for guidelines.

The deadline for all submissions is October 1, 2015. This deadline will not be extended.

Decisions regarding presentation acceptance will be announced by November 1st.

The Dorfman Award winner will be announced at the meeting.

Proposals should be submitted electronically, as a Word or PDF attachment, and sent to Dr. Jacqueline Volkman-Wise, Temple University, WRIA Vice-President / Program Chair, [jacqueline.wise@temple.edu](mailto:jacqueline.wise@temple.edu)

#### BOARD MEMBER CANDIDATES

WRIA members interested in being considered for the 2016 WRIA Board of Directors should send a separate e-mail of interest, on or before October 1, to WRIA Immediate Past-President Peggy Hedges: [hedges@ucalgary.ca](mailto:hedges@ucalgary.ca)

For more information about WRIA, please visit: [www.wria.org](http://www.wria.org)



## Publications Supported by The Geneva Association

### Announcement

Past issues of *The Geneva Papers on Risk and Insurance—Issues and Practice* (GPP) and of *The Geneva Risk and Insurance Review* (GRIR) are available for free on The Geneva Association's website three years after their date of publication: <https://www.genevaassociation.org/publications>. Vol. 37(3) July 2012 of GPP and Vol. 37(1) March 2012 of GRIR have now been made available online.

### Latest Issues

#### *The Geneva Papers on Risk and Insurance—Issues and Practice*

#### **40<sup>th</sup> Anniversary Collection**

##### Volume 40, No. 2 / April 2015

- Editorial—*The Geneva Papers*, 40 Years at the Cutting Edge of Research in Insurance Economics, by *Christophe Courbage*
- Diversification through Catastrophe Bonds: Lessons from the Subprime Financial Crisis, by *Peter Carayannopoulos and M. Fabricio Perez*
- Lemons or Cherries? Asymmetric Information in the German Private Long-term Care Insurance Market, by *Mark J. Browne and Tian Zhou-Richter*
- Systemic Risk in the Insurance Sector: A Review of Current Assessment Approaches, by *Andreas A. Jobst*
- Insurers' Investment in Infrastructure: Overview and Treatment under Solvency II, by *Nadine Gatzert and Thomas Kosub*
- Unisex Insurance Pricing: Consumers' Perception and Market Implications, by *Hato Schmeiser, Tina Störmer and Joël Wagner*
- Insurability in Microinsurance Markets: An Analysis of Problems and Potential Solutions, by *Christian Biener and Martin Eling*
- Risk Management and the Global Banking Crisis: Lessons for Insurance Solvency Regulation, by *Simon Ashby*
- Adaptation to Climate Change: Threats and Opportunities for the Insurance Industry, by *Celine Herweijer, Nicola Ranger and Robert E. T. Ward*
- The S-Curve Relation Between Per-Capita Income and Insurance Penetration, by *Rudolf Enz*
- On the Social Function and the Regulation of Liability Insurance, by *Steven Shavell*

##### Volume 40, No. 3 / July 2015

#### **SPECIAL ISSUE ON INSURANCE AND FINANCE**

##### **Guest Editor: Etti Baranoff**

- Editorial, by *Etti Baranoff*
- Systemic Features of Insurance and Banking, and the Role of Leverage, Capital and Loss Absorption, by *Christian Thimann*
- The Effects of a Low Interest Rate Environment on Life Insurers, by *Elia Berdin and Helmut Gründl*

- The Effects of Contingent Convertible (CoCo) Bonds on Insurers' Capital Requirements Under Solvency II, *by Tobias Niedrig and Helmut Gründl*
- Mergers and Acquisitions in the Global Insurance Industry: Valuation Effects, *by J. David Cummins, Paul Klumpes and Mary A. Weiss*
- The Structure of Reinsurance Contracts, *by M. Martin Boyer and Théodora Dupont-Courtade*
- Efficiency, Productivity and Returns to Scale Economies in the Non-Life Insurance Market in South Africa, *by Abdul Latif Alhassan and Nicholas Biekpe*
- The Relative Informativeness of Analysts' Stock Return Forecasts and Rating Changes for Insurance Companies, *by Leon Chen and Steven W. Pottier*
- Government Intervention through an Implicit Federal Backstop: Is There a Link to Market Power?, *by David L. Eckles and James I. Hilliard*

### ***The Geneva Risk and Insurance Review***

**Vol. 40, No. 1 / March 2015**

#### EGRIE KEYNOTE ADDRESS

- Lattices and Lotteries in Apportioning Risk, *by Harris Schlesinger*

#### ARTICLES

- Optimal Investment Strategies for Insurance Companies When Capital Requirements Are Imposed by a Standard Formula, *by Katharina Fischer and Sebastian Schlütter*
- The Benefits of Uniform Flood Insurance, *by Céline Grislain-Letrémy and Sabine Lemoyne de Forges*
- Quality of After-Sales Services in a Competitive Insurance Sector, *by Alessandro Fedele and Piero Tedeschi*





## THE RESEARCH PROGRAMME ON RISK AND INSURANCE ECONOMICS

The research programme on risk and insurance economics comprises the theoretical and academic activities of The Geneva Association.

It is dedicated to making an original contribution to the progress of insurance by promoting studies of the interdependence between economics and insurance and to highlighting the importance of risk and insurance economics as part of the modern general economic theory. The objectives of the programme are to detect and define special aims for research programmes in risk and insurance economics, to stimulate and support academic and professional research work in risk and insurance economics, and to diffuse knowledge and the results of research in risk and insurance economics worldwide.

### The Geneva Association

The Geneva Association is the leading international insurance think tank for strategically important insurance and risk management issues.

The Geneva Association identifies fundamental trends and strategic issues where insurance plays a substantial role or which influence the insurance sector. Through the development of research programmes, regular publications and the organisation of international meetings, The Geneva Association serves as a catalyst for progress in the understanding of risk and insurance matters and acts as an information creator and disseminator. It is the leading voice of the largest insurance groups worldwide in the dialogue with international institutions. In parallel, it advances—in economic and cultural terms—the development and application of risk management and the understanding of uncertainty in the modern economy.

The Geneva Association membership comprises a statutory maximum of 90 Chief Executive Officers (CEOs) from the world's top insurance and reinsurance companies. It organises international expert networks and manages discussion platforms for senior insurance executives and specialists as well as policymakers, regulators and multilateral organisations. The Geneva Association's annual General Assembly is the most prestigious gathering of leading insurance CEOs worldwide.

Established in 1973, The Geneva Association, officially the "International Association for the Study of Insurance Economics," has offices in Zurich, Switzerland and is a non-profit organisation funded by its Members.

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### The Geneva Association Insurance Economics Newsletter, N° 72, July 2015

This *Insurance Economics Newsletter* is published biannually by The Geneva Association as an information and liaison bulletin to promote contacts between economists at universities and in insurance as well as financial services companies with an interest in risk and insurance economics. Any suggestions concerning the content or layout of the newsletter are welcome. To subscribe to the e-Newsletter, please go to: <https://www.genevaassociation.org/subscriptions>.

**Editor:** Christophe Courbage, [christophe\\_courbage@genevaassociation.org](mailto:christophe_courbage@genevaassociation.org).

Available at [www.genevaassociation.org](http://www.genevaassociation.org)

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## FORTHCOMING CONFERENCES OF THE GENEVA ASSOCIATION

## 2015

## August

**2-6 Munich** **3<sup>rd</sup> World Risk and Insurance Economics Congress (WRIEC)**, organised by EGRIE in cooperation with APRIA, ARIA and The Geneva Association

## October

**20 Munich** **9<sup>th</sup> Geneva Association Meeting of Chief Investment Officers** (by invitation only)

## November

**4 Rüşchlikon** **11<sup>th</sup> Annual Liability Regimes**, on “Mastering Accumulation and Bodily Injury Exposures in a Rapidly Changing Environment”, hosted by Swiss Re (by invitation only)

**16-17 Singapore** **12<sup>th</sup> Health and Ageing Conference** on “Insuring health-care for the elderly in Asia”, co-organised with the Singapore College of Insurance

**17-19 Rüşchlikon** **11<sup>th</sup> Chief Risk Officer Assembly**, on “Technological and Societal Change, organised by Swiss Re (by invitation only)

## 2016

## June

**8-11 Rome** **43<sup>rd</sup> General Assembly of The Geneva Association**, hosted by the Italian Members (Members only)